



Transportation

Business Jet

Shown below is the CitationJet business aircraft, developed by Cessna Aircraft Company, Wichita, Kansas, and introduced to flight test in 1991. It is the first business jet to employ natural laminar flow (NLF), a technology developed by NASA's Langley Research Center and refined for the CitationJet application by Cessna.

NLF is a means of keeping the airflow over a wing smooth, or laminar, solely by the shape of the wing surface. Near the leading edge, air moves over the wing in smooth, aerodynamically efficient sheets called "laminas." As the air moves farther across the wing, friction between the air and the wing causes the laminas to expand and the air becomes turbulent. The turbulence creates added drag, which limits the airplane's speed and increases its fuel consumption.

NASA has developed technology for a number of ways of maintaining laminar flow, among them a series of NLF airfoils shaped to keep the air smooth for a longer time as it progresses over the wing.

With a conventional wing, the onset of turbulence occurs near the wing's leading edge. With the CitationJet's NLF wing, the design goal is to extend laminar flow across 35 percent of the wing's chord. NASA's Central Industrial Applications Center, Rural Enterprises, Inc., Durant, Oklahoma, and its Kansas affiliate, Kansas Technology Enterprise Corporation, Topeka, Kansas, and Wichita State University assisted Cessna in the transfer of the NLF technology.

NLF and other design elements combine to give the CitationJet cruise speeds up to 437 miles per hour, a range of 1,500 miles and the ability to operate from airstrips of less than 3,000 feet.

Cessna describes the nine-passenger CitationJet as an "entry level" business jet and claims it is "the lowest priced business jet you can buy" at \$2.5 million. Within two days of the announcement of its availability, the first production block of 50 airplanes was sold out. Certification by the Federal Aviation Administration and first deliveries are expected in October 1992.

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